EFFECTIVENESS OF FUNDAL MASSAGE ON UTERINE INVOLUTION AMONG POSTNATAL MOTHERS ADMITTED IN POSTNATAL WARD IN BENSAM HOSPITAL AT KANYAKUMARI DISTRICT.

DISSERTATION SUBMITTED TO

THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY

CHENNAI

IN PARTIAL FULFILMENT FOR THE DEGREE OF

MASTER OF SCIENCE IN NURSING

APRIL 2012

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BY

MISS. A. SHYLA

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RI.K.RAMACHANDRAN NAIDU COLLEGE OF NURSING

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A QUASI EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF FUNDAL MASSAGE ON UTERINE INVOLUTION AMONG POSTNATAL MOTHERS ADMITTED IN POSTNATAL WARD AT BENSAM HOSPITALAT KANYAKUMARI DISTRICT.

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MASTER OF SCIENCE IN NURSING

APRIL 2012

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ABSTRACT

A Quasi experimental study to assess the effectiveness of fundal massage on uterine involution among postnatal mothers admitted in postnatal ward at Bensam hospital, Nagercoil, Study was conducted by **Ms.Shyla** in partial fulfillment of the requirement for the degree of Master of Science in Nursing at the Sri.K.R.N. College of Nursing, under the Tamilnadu Dr.M.G.R. Medical University.

The Objectives of the Study were,

1. To assess the pre-test level of uterine involution during postnatal period among postnatal mothers in experimental group and control group.
2. To find out the effectiveness of fundal massage on uterine involution during postnatal period among postnatal mothers in experimental group and control group.
3. To compare the pre and post-test level of uterine involution during postnatal period among postnatal mothers in experimental group.
4. To compare the pre and post-test level of uterine involution during postnatal period among postnatal mothers in control group.
5. To associate the post-test level of uterine involution during postnatal period among postnatal mothers in experimental group and control group with their selected demographic variables.

The following Hypotheses were set for the study

Hypotheses were tested at.05 level

H_1 Mean post-test level of uterine involution of postnatal mothers in experimental group was significantly higher than the mean post-test level of uterine involution in control group.

H_2 There was a significant difference between mean pre-test and post-test level of uterine involution among postnatal mothers in experimental group.

H3 There was a significant difference between mean pre-test and post-test level of uterine involution among postnatal mothers in control group.

H_4 There was a significant association between post-test level of uterine involution among postnatal mothers in experimental group with their selected demographic variables

H_5 There was a significant association between post-test level of uterine involution among postnatal mothers in control group with their selected demographic variables.

The study was based on King Goal Attainment model. The quantitative research approach was used. The study was conducted in Bensam Hospital, Nagercoil. The design adopted for the study was quasi experimental design with pre and post-test control group design to evaluate the effectiveness of fundal massage on uterine involution. Purposive sampling was used to select 60 postnatal mothers in bensam hospital among that 30 samples were allotted for experimental group, 30 samples for control group.

The data collection tools developed for generating the necessary data was modified fundal assessment scale to assess the effectiveness of fundal massage on

uterine involution. The content validity of the tools was established by five clinical experts. The reliability of rating scale (r=0.8) was established by Inter-rater observer technique method. The instrument was found to be reliable. Pilot study was conducted to find out the feasibility of the study and to plan for data analysis.

Data collection was done and the data obtained were analysed in terms of both descriptive and inferential statistics.

The Significant Findings of the Study were:

1. There was a significant difference between mean post-test level of uterine involution among postnatal mothers in experimental and control group ($t=4.958$, $p<0.05$).
2. There was a significant difference between mean pre and post-test level of uterine involution among postnatal mothers in experimental group ($t=11.66$, $p<0.05$).
3. There was a significant difference between mean pre and post-test level of uterine involution among postnatal mothers in control group ($t=8$, $p<0.05$).
4. There was no significant association of post-test level of uterine involution between experimental group and demographic variables in age, education, occupation, type of family, gravida, area of living among postnatal mothers at ($p<0.05$)level.
5. There was a significant association of post-test level of uterine involution between control group and demographic variables in area of living except age, education, occupation, type of family, gravida, among postnatal mothers at ($p<0.05$) level.

On the Basis of the Findings of the Study it is Recommended that,

1. A study can be conducted to assess the knowledge and practice of fundal massage on uterine involution among nurse midwives.
2. A study can be conducted to assess the knowledge and attitude of complementary therapies for uterine involution among nurse midwives.
3. A study can be conducted to assess the effectiveness of other nursing measures such as abdominal binder, postnatal exercise among postnatal mothers.
4. A study can be conducted to assess the effectiveness of fundal massage on reduction of postpartum haemorrhage in postnatal mothers.

Recommendation Based on the Suggestion of the Study Subjects

1. Inservice education should be conducted periodically to the midwives regarding uterine involution.
2. Mass media should be effectively utilized for conducting programmes on postnatal period.
3. Hospital should provide independent health clinics, guidance and counselling for all postnatal mothers.

CONCLUSION

The present study assessed the effectiveness of fundal massage on uterine involution among postnatal mothers. The results of the study concluded that applying fundal massage was effective in uterine involution of postnatal mothers. Fundal massage is easy to apply, not painful and can enhance comfort to the mother in the postnatal period, hence could easily be adopted as a regular intervention. Therefore, the investigator felt that more importance should be given to the assessment of post

uterine involution by using modified fundal assessment scale following the intervention of fundal massage. It can be given as a non-pharmacological measures to enhance good uterine involution.

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ACKNOWLEDGEMENT

I thank almighty **LORD JESUS CHRIST** with reverence and sincerity for his abundant grace, which strengthened me in each step throughout this endeavour.

With profound sentiments and gratitude, the investigator acknowledges the encouragement and help she has received from the following persons for the successful completion of this study.

At the outset I express my heartful gratitude to **Mr.R.Vivekanandan** chairman and **Mrs.G.Premsantha** Managing Trustee of Sri.K.Ramachandran Naidu College of Nursing for giving me a chance to uplift my professional life.

My earnest and genuine gratitude goes to **Prof.** (**Mrs). N.Saraswathy, M.Sc., (N), Ph.D.**, Principal, Head of the department of Pediatric nursing of Sri. K. Ramachandran Naidu College of Nursing, for her valuable guidance, patience, source of inspiration, constant encouragement and enlightening ideas which enabled me to accomplish this task.

I am extremely grateful to **Mrs. P.Subbalakshmi, M.Sc.(N) Associate Professor, Class Co-ordinator** and **Mrs.V.Jaya, M.Sc.(N) Assistant co-ordinator,** Sri.K.Ramachandran Naidu College of Nursing, for a constant source of inspiration and encouragement, which was a key for the successful completion of this study.

I wish to express my sincere thanks to **Mrs.G.Annal Angeline, M.Sc. (N) Associate Professor, Head of the Department (Obstetrics and Gynaecological Nursing), Ms. V. Murugeshwari, M.Sc. (N)** and **Mrs. R.Vasanthamalai**, **M.Sc. (N) Lecturer**, and all the faculty of Obstetrics and Gynaecological Nursing,

Sri.K.Ramachandran Naidu College of Nursing, for their guidance and suggestions for the completion of the study.

A memorable note of gratitude to **Dr. Mr.A. J.Bensam, M.D, FRCS,** Director, Bensam Hospital, Kanyakumari for granting me permission and cooperation for conducting the study.

I extend my grateful thanks to all the **Medical and Nursing Experts** in Bensam Hospital for cooperation and help during my data collection procedure.

I extend my heartful thanks to all the **Postnatal mothers** who participated in my study for their cooperation during the data collection.

I extend my warmest thanks to **Mr.S. Jayan DharamaRaj M.A., M.A., M.Phil.,** for editing my content in English.

I am indeed thankful to the **Librarians** of Sri. K.Ramachandran Naidu College of Nursing and The Tamilnadu Dr. M.G. R. Medical University for their co-operation and their support extended in procuring the literature related to the study.

I extend my warmest thanks to my dear father **Mr.Abraham Manoher**, my dear mother **Mrs.Mercy**, my dear sister **Mrs.A.Ramya,** my brother in law **Mr.A.Kumar,** my brother **Mr.A.Moses** and all my family members for their encouragement and support throughout my study.

A special bouquet of thanks to all my lovable friends who have helped me a lot to complete the study.

I extend my grateful thanks to those who helped me directly and indirectly during my project work.

CHAPTER-I

INTRODUCTION

"God could not be everywhere and therefore he made mothers."

- **A Jewish Proverb**

BACKGROUND OF THE STUDY

Ancient folk and various historical nations all around the world have used therapeutic massage in everyday life style. There are several forms of historical therapeutic massages used through the early intervals which were powerful and productive in controlling health problem. Between these kinds of massages Mayan therapeutic massage was created to help remedy condition within tummy, pelvic organ and reproductive system of the women. It helps to increase good posture of the uterus.

Puerperium is the period following child birth during which the body tissues especially the pelvic organs revert back to the pre pregnant state both anatomicallyand physiologically.

Involution is used to refer the retrogressive changes taking place in all of theorgans and structures of the reproductive tract.

Immediately following delivery the uterus becomes firm and retracted withalternatehardening and softening during Pregnancy. It weighs approximately1000gm and measures 15x12x8-10cm in length;width and thickness. This is roughlyabout two to three times the size of the non pregnant nulliparous uterus

involves the reorganization and shedding of the decidua,endometrium and the exofoliation of theplacental site as evidenced by decrease in size and weight.

Immediately after delivery the cervix becomes extremely soft,flobby.It may be bruised and edematous looks congested and readily admits two or three fingers. The contour of the cervix takes longer time to regain .Vagina remains quite stretched, may have some degree of oedema and bruising and gapes open at the introitus.

Increased estrogen and progesterone levels are responsible for stimulating the massive growth of the uterus during pregnancyprenatal uterine growth results from both hypertrophy and enlargement of the existing cells.

The fundal height above the top of symphysis pubis is15, 10, 5cm on the Day 0, 6,12 after delivery uterine muscle fibres rapidly decrease in length up to fifth weeks when they are shorter than normal the breadth of the fibres increases in thefirst few hours and then decreases over five weeks liberation of peptones is seen withuterine involution.

A firm uterus will control Postpartum Haemorrhage. Massage the abdomen once every hour it helps to make the uterus firm and if the uterus does not firmprepared for an injection pitocin. It will stimulate the contraction and make the uterus firm.**(Heidi Gonzales, 1986).**

The fundal massage helps the uterus to go back its original size and it helps to expel stuff that is present inside the uterus. Uterus continues to contract and relax. It also controls Postpartum Haemorrhage bycontracting and compressing the mother blood vessels at the site where the placenta where implanted. **(Saint Johgns, 1998).**

Bimanual uterine massages help to relieve from uterine atony. It was performed by placing one hand in the vagina and pushing against the body of the uterus while other hand compresses the fundus from above through the abdominal wall the posterior aspect of the uterus is massage with abdominal hand and anterior aspect with vaginal hand.It is used to make the uteruscontract. **(Redrawn Christy&Krames, 2001).**

Touch and massage was a central component of care.Massage is an essential and vital part of holistic maternity care. Mayan uterine massage encouragesreproductive health and enhances child bearing. In cultures all over the world,midwives and mothers have massaged and oiled the perineum to increase elasticityand used fundal massage to help the uterus contract during labor and after the birth ofthe placenta. Postpartum massage can hasten postpartum healing,hasten post-cesarean healing, promote musculoskeletal realignment and prevent depression.Compassionate healing touch nurtures and supports the physical,psychological, emotional health.**(Kara Maisa Spencer, 2004).**

Involution is the process by which the uterus contracts and slowly moves down into pelvis over six weeks. The uterus shrinks to its normal size and positions itself in to pelvis. The rate of uterine involution is same in primiand multiparas. It is rapid in the first ten days and slower later on. (**Isaac Blickstein&BirgitArabin, 2005).**

Duringvaginal delivery a dose of 10 IU of oxytocin administered intramuscularly.Intravenous access in place 10 to 20 IU placed in 500 to 1000ml of crystalloid and run quickly. With cesarean deliveries five IU is administered as an intravenously high dose infusion helps in uterine involutionand decrease the riskof

uterine atony.Use of uterine massage and control cord traction for prophylacticpurpose. And then palpate the abdomen to assess and monitor uterine tone and size.Rapid infusion of oxytocin to encourage uterine contraction and then do the fundal massage helps for good involution.**(Deborah Armbruster, 2008).**

Massaging the fundus initially after delivery helps in uterine involution and decreased vaginal flow called lochia. Lochia is the vaginal discharge of the uterine lining where the placenta was attached. The discharge will continue forfour to six weeks, until the area is completely healed. Immediately after delivery it will resemble a heavy period flow, appearing bright red in color and sometimescontaining small clots. After a few days, it will turn to a pinkish brown color andthen finally to a yellowish white color. Use sanitary pads during this time because the cervix is still open and could introduce bacteria into the uterus.**(ZehraNesekavakn, 2009).**

Some of the drugs cause uterine relaxation it can lead dangerous bleeding following delivery. Beta-sympathomimetics relax the uterus via beta-z stimulationand also calcium antagonist such as nifidipine,magnesium sulfate may inhibit uterinecontraction.Nitroglycerin and some inhalational anesthetic agent also decrease uterine contractility. **(David Chelmow, 2010).**

Early suckling or nipple stimulation helps to improve uterine contractility.Early suckling should be encouraged because it promotes bonding and breast milk and may help to maintain uterine tone.

NEED FOR THE STUDY

The postnatal period begins from birth and ends when the baby is six weeks of age.The physical changes a woman experiences after birth are dramatic and amazing.

Once the baby and the placenta have been born, the uterus begins to shrink that is called uterine involution. After birth the uterus weighs nearly one kilogram, by six weeks it weights approximately 100 grams.But it appears that the muscle fibres of the uterus are gradually broken down. The uterus continues to contract after birth to control bleeding and improve the uterine involution.

A prospective observational study was conducted in India to find out the maternal morbidity rate during labourand puerperium period.The incidence of maternal morbidity was 52.6 percent, 17.7 percent during labour and 42.9 percent during puerperium. The most common intrapartum morbidities were prolonged labour (10.1%), prolonged rupture of membranes (5.7%), abnormal presentation (4.0%) and primary postpartum haemorrhage (3.2%). The postpartum morbidities included breast problems (18.4%), secondary postpartum haemorrhage (15.2%), puerperal genital infections (10.2%) and insomnia (7.4%). Abnormal presentation and some puerperal complications (infection, fits, psychosis and breast problems) were significantly associated with adverse perinatal outcomes. One third of the mothers were in need of medical attention: 15.3 percent emergency obstetric care and 24.0 percent non-emergency medical attention. Medical presence or interventions at the time of labour took place in 217 (28%) cases. These included i)trained birth attendants insertion of hand to make delivery (1%), ii) delivery attended by nurse or doctor or both at home (9.7 %), iii) nurse/doctor called at home for delivery and providing treatment to the mother (12.2 %) (mainly for giving oxytoxic injections even though delivery was conducted by TBA), iv) hospitalization before or during delivery (5.1%). Out of these 217 women, 63 (29.0 %) had a maternallabourcomplication documented by the village health workers.(**Raniabang,2000).**

A study to assess the quality of care in management of major obstetric haemorrhage. A prospective audit carried out by multi disciplinary team over one year period. Maternal mortality 31 cases were identified incidence of 35/1000 deliveries. Predominant cause uterine atony11(35.4%),retained product of conception 6(19.3%) and placenta previa 6 (19.3%),accrete 6(19.3%) areas for improvement were identified.(**Gencyrock,2000).**

Gentle massage of the uterine fundus helps to contract and expel the clots and also it helps to restore uterine tone. Relaxation of uterine muscles lead to postpartum hemorrhage. Uterine atony is the leading cause of Postpartum Haemorrhage complicating approximately one in 20 birthsand it is associated with high parity, hydromnios,multi fetal gestation in such conditions the uterus is over stretched and contracts poorly after birth. The third and fourth stages of labor are usually uneventful, although significant complications can occur in this period. The most common is postpartum haemorrhage. While maternal mortality rates have declined dramatically in the developed world, postpartum haemorrhage remains a leading cause of maternal mortality.

The pregnancy related (direct) maternal mortality rate in the United States is approximately seven to ten women per 100,000 live births. National statistics suggest that approximately eight percent of these deaths are caused by postpartum haemorrhage. In the developing world,several countries have maternal mortality rates in excess of 1000 women per 100,000 live births. **(Johnson SN, 2001).**

World Health Organization (WHO) statistics suggest that 25 percent of maternal deaths are due to postpartum haemorrhage, accounting for more than

100,000 maternal deaths per year. The death of these mothers has serious implications for the newborn and anyother surviving children.

A higher incidence of increased blood pressure following delivery wasobserved (diastolic blood pressure >100 mm Hg) in the active management group. This group also had a higher incidence of nausea and vomiting.The slight trend in manual removal of the placenta and the significant increases in the rates of hypertension, nausea, and vomiting appear to be a function of the chosen uterotonic.These effects are noted with ergot preparations and not with oxytocin, here non-pharmacology fundal massage will reduce the side effects.

Incidence of caesarean section is steadily rising during the last decade therehas been two to three fold rise in the incidence from the initial rate of about ten percent factors responsible mothers who had caesarean section had poor involution.

Researcher during her clinical experience has observed most of the mothers Suffer poor uterine involution.The nurses responsibility is to improve the uterine involution after delivery, there are many pharmacological measures available to contract the uterus but may bring more side effects. The investigator beinga nurse interested in nonpharmacological method of fundal massageto improve uterine involutionduring postnatal period.

STATEMENT OF THE PROBLEM

A Quasi experimental study to assess the effectiveness of Fundal massage onuterine involution among postnatal mothers admitted in postnatal ward at BensamHospital,Nagercoil.

OBJECTIVES

1. To assess the pre-test level of uterine involution during postnatal period among postnatal mothers inexperimental group and control group.
2. To find out the effectiveness of fundal massage on uterine involutionduring postnatal period among postnatal mothers in experimental group and control group.
3. To compare the pre and post-test level of uterine involution during postnatal period amongpostnatal mothers in experimental group.
4. To compare the pre and post-test level of uterine involution during postnatalperiod amongpostnatal mothers in control group.
5. To associate the post-test level of uterine involution during postnatal periodamong postnatal mothers in experimental group and control group with their selected demographic variables.

HYPOTHESES

Hypotheses were tested at.05 level

H_1 Mean post-test level of uterine involution of postnatal mothers in experimental group will be significantly higher than the mean post-testlevel of uterine involution in control group.

H_2 There will be a significant difference between mean pre-test and post-test level of uterine involution among postnatal mothers in experimental group.

H_3 There will be a significant difference between mean pre-test and post-test level of uterine involution among postnatal mothers in control group.

H_4 There will be a significant association between post-testlevel of uterine involution among postnatal mothers in experimental group with theirselected demographic variables.

H_5 There will be a significant association between post-testlevel of uterine involution among postnatal mothers incontrol group with theirselected demographic variables.

OPERATIONAL DEFINITIONS

Assess

It refers to systematically, continuously,collecting,validating and communicating the data regarding uterine involution among postnatal mothers by modified fundal assessment scale.

Effectiveness

It refers to the outcome of fundal massage on improvement of uterine involutionamong postnatal mothers.

Fundal Massage

It refers to the investigator massaging the fundus of uterus for ten minutes with the interval of one hour, two times for three days among experimental group of postnatal mothers.

Postnatal Mothers

It refers to bothprimi and multi mothers after normal delivery within three days.

Postnatal Ward

It refers to a ward where the mothers taken care after six hours of delivery till discharge.

Uterine involution

Uterine involution is the process by which uterus contracts and slowly moves into the pelvis over a period of six weeks after delivery.

ASSUMPTIONS

1. Fundal massage may increase the uterine involution.
2. Fundal massage may reduce the postpartum haemorrhage.

DELIMITATIONS

1. The study was delimited to four weeks.
2. The study was delimited to 60 postnatal mothers.

PROJECTED OUTCOME

1. Administration of fundal massage will increase the uterine involution among postnatal mothers.
2. Findings of the study will help nurses to provide fundal massage to increase uterine involution among postnatal mothers.

CONCEPTUAL FRAMEWORK

Conceptual model presentscertain views of phenomenain the world that have profound influences on our perception of that world. A model is a simplification of reality or representation of reality. Concepts in the model builds consider relevant and as aids to understanding.

The study was mainly focused to find out the effectiveness of fundal massage on uterine involution among postnatal mothers. In order to improve the involution investigator administered fundal massage.

The investigator adopted the King's Goal Attainment theory (1980) as a base for developing the conceptual framework. Imogene King's Goal attainment theory is based on the personnel and interpersonal systems, including perception, judgement, action, reaction,interaction, transaction.

Perception

Refers to person representation of reality. It is universal yet highly subjective and unique to each person. Hence the investigator perception was peoples may have complaint of poor involution.

Judgement

The investigator judged that fundal massage improve the uterine involution among postnatal mothers. The investigator judge the need for improving the uterine involution.

Action

The investigator administered fundal massage to improve the uterine involution. The postnatal mothers were willing to accept fundal massage and participated in the study.

Reaction

The investigator and postnatal mothers set mutual goal setting.

Interaction

Refers to verbal and non verbal behavior of individual and the environment or two or more individual with a purpose to achieve goal. It includes the goal directed perception and communication. Here the investigator interacts with the postnatal mother by giving fundal massage(for ten minutes with the interval of one hour for three days) to improve the good uterine involution among postnatal mothers.

Transaction

Refers to an observable, purposeful behavior of individual interaction with their environment to achieve the desired goal. At this stage the investigator analyse fundal height among postnatal mothers in order to administer fundal massage. The positive outcome in post-test is the good involution which, indicate the effectiveness of fundal massage.

CHAPTER-II

REVIEW OF LITERATURE

Review of literature is defined as a critical summary of review on a topic of interest, often prepared to put a research problem in contest **(Polit& Beck,2006).**

The review of literature in the research report is a summary of current knowledge about a particular practice problem and includes what is known and not known about the problem. The literature is reviewed to summarize knowledge for use in practices or to provide a basis for conducting a study **(Burns, 1997)**.

This study examined the effects of fundal massage on uterine involutionin postnatal mothers. From the collected review of various associated literature and research studies.The literature review is arranged in the following sections

Section-A: Studies related to uterine involution.

Section-B: Studies related to fundal massage.

Section-C: Studies related to fundal massage on uterine involution.

SECTION A:STUDIES RELATED TO UTERINE INVOLUTION

Arabin B (2000) conducted a prospective randomized study to assess the effectiveness of Methylergometrin on uterine involution. In this 880 samples were selected. In that 444 mothers received 0.125mg of methylergomertine threetimes a day.While 436 mothers received same dose of placebo.Study concluded that there was acceleration in uterine involution in the first few days for mother received methergin.

Katedry (2002) conducted a study to analyse the histological findings among women underwent curettage during puerperium.Fifty samples were selected for this study.In this first group consist of 20 mothers underwent curettage between 3rdand 11thday.Second group consist of 30 mothers underwent curettage between 11th and 56 days after birth. In that first group four members had retained placental fragment,fifteen mothers had decidual tissue,one mother had fragment of myometrium in uterus.In second group placental tissue was obtained for nine mothers, decidual tissue present for 13 mothers, proliferative endometrium seen in three mothers. Researcher concluded that retained product of conception is a major indication for delayed postpartum uterine involution or haemorrhage.

Nikolov A et al., (2003) conducted a prospective study to determine the distance between symphysis pubis and uterine fundus and also estimate the level of uterine involution according to the method of delivery. One hundred and fifty women were selected in this study and divided into three groups. Fifty mothers with vaginal delivery and 50 mothers with caesarean section,50 mothers with recaesareansection.The absolute values of the distance S-FD and the rate of uterine involution were determined in cm and estimated according to their parity and the gestational age. The measurement of the S-FD was daily performed from the second day till the 5thday for the vaginal deliveries and till the 7thday for the caesarean sections. Researcherconcluded vaginal delivery mothers had faster involution when compared to caesarean section.

Bullough(2004)conducted a study to assess the effectiveness of suckling on uterine involution.Four thousand samples were selected for this study.Mothers gave

breastfeeding to their babies.It helps to stimulate natural production of oxytocin and maintain good uterine tone.Symphysis fundal distance was measured, result shown mothers who gave breast feeding to their babies had a good involution than non breast feeding mothers.

KlinickiCentarKragujevac(2004) conducted a study to assess the effectiveness of early contact between the mother and baby on uterine involution and less post delivery anemia.The study group consisted of 216 mothers in experimental group that spend the time with their babies and had the early contact with the babies as well, and the control group consisted of 216 mothers that were detached from their babies. Puerperiumwere observed in the aspects of theuterusinvolution, post deliveryhemogramme on the third day after the childbirth, sanitary napkin consumption and the hospitalization length.Researcher concluded that experimental group had good uterine involution and decreased postpartum bleeding.

Taiwan Taichung (2004) Department of Obstetrics and Gynaecology,China Medical University conducted a study to find out the effectiveness of Traditional Chinese postpartum care on uterine involution. This study investigated the associated elements in dietary and herbal therapy with uterine involution. Study conducted in Chinese traditional hospital the subjects were 127 postpartum mothers were selected between four to six weeks after delivery.Selfreported retrospective questionnaire used to find out the frequencies of taking herbal medicines during first month.Correlation co efficient were calculated to identify the association. Then regression models were used to identify the

predictors. Study concluded that Chinese herbal medicines help to improve the uterine involution.

Kavanagh (2005) conducted a study to assess the effectiveness of nipple stimulation on third stage of labour. Experimental group received nipple stimulation by rolling the nipple in between the thumb and finger. This technique releases the hormone oxytocin which initiates contraction and control the postpartum haemorrhage. Researcher concluded that nipple stimulation control postpartum haemorrhage and maintain uterine tone.

VillarJandValladares (2005)conducted a study to assess the timing of the administration of the uterotonic drug oxytocin in third stage of labour, one group received oxytocin drug before the expulsion of the placenta and other group received oxytocin after expulsion of placenta. Result revealed that before the expulsion of the placenta did not haveany significant influence on the incidence of postpartum hemorrhage when compared to administering the drug after the expulsion of the placenta. Researcher concluded that administering oxytocin drug after the expulsion of the placenta helps in reduction of postpartumhaemorrhage and improve the uterine tone.

Robin Kalish(2006) conducted a study in a maternity unit in South of England to describe normal postnatal uterine involution in a small sample of healthy primiparous women, and estimate the distance between the symphysis pubis and uterine fundus (S-FD). Daily measurement of the S-FD was carried out in 28 healthy women within 18 hours of delivery until the uterine fundus was no longer palpable abdominally. Graphs showing the daily measurements and correlation coefficients were used to describe

involution. Researcher concluded that mothers had considerable variability in the pattern of uterine involution.

KeiseMJ (2007)conducted a study to establish normal values for the uterine involution during the first five days of the postpartum period. To measure the height of the fundus researcher used finger breadths and also the tape method. These two methods used to differentiate from the electronical method. These data helps to find out normal and abnormal uterine involution. Researcher concluded that all three methods help to estimate uterine involution.

Buisson Tomikowski(2005)conducted a study to monitor the uterine involution during the first month after child birth by means of clinical examinations and abdominal ultrasound. One hundred and fifty clinical and ultrasound examinations were performed in 77 women onDay2, Day7 and Day28. The size of the uterus and the uterine cavity were measured on the longitudinal sections only. The other incidences, and particularly the axial incidence, made it possible to describe the aspects of the uterine cavity. Uterine involution is rapid during the first week and then slows down. By the Day28,the dimensions of the uterus have returned to the upper limit for the non-pregnant uterus. During the first week the emptiness line is visible in one out of 13 cases. Hematometra is visible in one out of six cases and more frequent on Day7 than onDay2. It gave rise to no clinical signs. In all cases, an emptiness line was observed on Day 28postpartum. Researcher concluded that clinical examination and abdominal ultrasound helps to monitor the uterine involution.

Ursula von Mandach (2007)conducted a prospective cohort study in Zurich University Hospital, Switzerland to measure puerperal SymphysisFundus Distance by twomanual methods and to calculate individual normal values. Study including women after singlepregnancy without special problems in uterine involution.Symphysis Fundus Distance was daily measured on the first to fifth postpartum days by counting the number of midwife's fingers put horizontally on the mother'sabdomen and by a paper tape, respectively. Linear mixed model analysis was performed todetermine Symphysis Fundus Distance normal values.Independent variables determining the Symphysis Fundus Distance on different daysafter delivery were the gestational age and the delivery mode (finger method) and the maternal age, Body Mass Index (BMI), delivery mode and birth weight (tape method). Researcher concluded these two methods also helps to identify the level of uterine involution.

Rodeck(2008) conducted a study to assess uterine involution and uterine cavity length and width for both primi and second para mothers by ultrasonography.Twenty samples were selected after full term delivery.In this ten mothers wereprimi and ten mothers were multiparous during first eight days of puerperium.The researcher concluded that the rates of involution were similar for both groups but width on the day third,fifth,eighth were significantly higher in second para mothers.

Julie(2008) conducted a longitudinal study to determine the influence of parity on postpartum uterine diameters during involution.Three hundred samples were selected for thisstudy.The patients were divided into two groups,nulliparous and multiparous group based on parity.The uterine diameters were larger in the multiparous when compared

with nulliparous group.Further analysis revealed positive (Pearson's)correlation between parity and uterine diameters and uterine volume.There was no significant correlation between parity and uterinevolume on the 42nd puerperal day.

Negishi(2009)conducteda comparative study to assess uterine size and uterine involution for vaginal delivery and caesarean section. Symphysis fundal distances were measured for both groups, in that 80 percent had smaller uteri in vaginal delivery women.Researcher concluded that mother had vaginal delivery shown higher uterine involution than caesarean section.

Irons D (2009) conducted a study to assess the effectiveness of nipple stimulation on third stage labour.Six samples were received 15 minutes nipple stimulationthree members received routine syntometrine.Uterine activity measured by placenta in-situ hydrostatic bag connected to pressure transducer.In this result uterine pressure higher in during nipple stimulation and it helps for reducing bleeding,improving uterine involution.Researcher concluded that nipple stimulation is alternative for oxytocin.

Judy Angerson(2010) conducted a study to assess the effectiveness of neonatal suckling on uterine involution.One hundred and twenty nine mothers were selected for this study. Suckling was measured by using the infant breast feeding assessment tool. Mothers evaluated for breast feeds and symphysis fundal distance. Result shown mother had good involution during breast feeding period. Researcher concluded that suckling reflex helps to improve the uterine involution.

SECTION B :STUDIES RELATED TO FUNDAL MASSAGE

Hofmevr(2003) conducted a study to assess the effectiveness of uterine massage onreduction of postpartum haemorrhage among postnatal mothers.Two hundred and twenty samples were selected in this study by simple random technique. Bleeding levels were measured after delivery of placenta. The result revealed that bleeding level was significantly low in experimental group than control group.The study concluded that uterine massagehelped in reduction of postpartumhaemorrhage.

Anderson(2007) conducted a Cochrane data base study to assess the effectiveness of active management versus expectant management of the thirdstage of labour to reduce severe maternal bleeding and anemia. One group received oxytocin and cord traction with fundal massage, other group received oxytocin with 500ml of ringerlactate.Researcher revealed that activemanagement of mothers who received oxytocin and cord traction with fundalmassage had less risk of postpartum haemorrhageand anemia compared with expectant management.

Denielle E Castagnola(2008)conducted a randomized trial of fundal massage on management of the third stage of labour. Samples received fundal massage after delivery of baby. Fundal massage helps in spontaneous separation of placenta and control of Postpartumhaemorrhage. Result revealed fundal massage received mothers had less Postpartumhaemorrhage. Researcher concluded that fundal massage is good in management of third stage of labour.

Jane Palmer(2008)conducted a systematic randamised control trial to assess Effectiveness of fundal massage in reduction of Postpartum haemorrhage. In this study

200 samples were selected. Mothers received fundalmassage immediatelyafter delivery. Bleeding level was assessed.Result shown less risk of postpartum haemorrhage. Researcher concluded that fundal massage helps in reduction of Postpartumhaemorrhage.

SECTION C: STUDIES RELATED TO FUNDAL MASSAGE ON UTERINE INVOLUTION

Borruto Franco(2001) conducteda randomised controlled study to compare theeffectiveness of a single intravenous injection of carbetocin and intravenous infusion ofoxytocin with fundal massage to prevent uterine atony and reduce the incidence of postpartum haemorrhage. Hundred and four samples are selected and divided into two groups. One group received injection 100ug carbetocinintravenous and other group received oxytocin.Blood lossassessed. No significant differences between the groups. Study concluded that carbetocin is a therapeutic alternative to oxytocin in the prevention of uterine atony and it helps for involution.

Murphy(2003) conducted a study to assess the risk factors of postpartum haemorrhage and prevention of postpartum haemorrhage. Sixty nine samples were selected in this study.Samples are retrospectively analyzed. Researcher concludes that causes of postpartum haemorrage are poor uterine contraction, retained placenta,maternal coagulopathy and treatment for postpartum haemorrage. Fundal massage helps to stimulate uterine contraction,improve the involution and also intermittent massage used to prevent further relaxation of uterus.

Jillsuttie(2004)conducted a study to assess the effectiveness of fundal massage on uterine involution. Thousand samples were selected for this study.Mothersreceived the

fundal massage after the delivery of placenta. It helps to maintain good uterine tone.Symphysis fundal distance was measured, result shown mothers who received fundal massage had a good involution than others.Researcher concluded that fundal massage helps in improving the uterine involution.

Cynthiastanton, Johns Hopkins Bloomberg(2008)conducted a study on active management of the third stage labour.Samples were selected by probability method of sampling. Standardized questionnaires were used for all data collection, use of uterotonic immediately following delivery of the fetus,control cord traction and fundal massage given immediately after delivery of the placenta followed by palpation of the uterus every 15minutes for twohours.The study concluded that active management helped in reduction of postpartum haemorrhageand improve the uterine involution.

Prendivilleet al., (2008) conducted a comparative study on active versus expectant. Management on reduction of postpartum haemorrhage in third stage of labour.Active management with fundal massage resulted in reduction of maternal blood loss by an average 79.33ml,lengh of labour decreased by an average of nine minutes leads to decrease in risk of bloodloss and help for involution. Meta analysis concluded active management of third stage is safe, effective and decreases haemorrhage due to uterine atony.

Martis.R et al.,(2010)conducteda randomised controlled study to assess theeffectiveness of fundal massage on uterine involution. Two fifty mothers were selectedfor this study and they were received fundal massage. The measurement of symphysis fundal distance was daily performed from the first day to till third day for the

vaginal deliveries. Fundal massage stimulates the uterus to contract.The study concluded that fundal massage helped in uterine involution and control of postpartum haemorrhage.

S. K. Shah et al.,(2011) National Research Centreconducted a study to assess the effectiveness of fundal massage on involution of uterus.On the day of delivery mothers were assigned to receive the fundal massage for experimental group. Involution of uterus assessed twice daily with the help of measuring tape.Mothers had good involution than control group.The researcher concluded that fundal massage helps in uterine involution.

Jolle (2011)conducteda study to assess theeffectiveness of fundal massage on uterine involution. Seventy five samples were selected in this study. Experimental group received fundal massage after delivery. It helps to release the oxytocin which improves the uterine involution. Researcher used the tape method to measure the fundal height. The study concluded that fundal massage helped in involution of uterus.

Mornewardene (2011) conducted a randomized control trails to assess the effectiveness of fundal massage on uterine involution. Four fifty samples were selected in that two twenty five samples received fundal massage remaining two twenty five samples not received the fundal massage.Investigator measured the size of the uterus by using ultrasound and compare the experimental and control group.Researcher concludedthat massaging the uterine fundus helps to separate the placenta from endometrium and increase the uterine involution.

CHAPTER-III

RESEARCH METHODOLOGY

Research methodology refers to the techniques used to structure a study and together and analyze information in a systematic fashion (**Polit&Hungler,2008).** Methodology includes the steps, procedures and strategies for gathering and analyzing the data in the research investigation.

This chapter describes the methodology followed to assess the effectiveness of fundal massage on uterine involution among postnatal mothers.

This chapter consists of research approach, research design, variables in the study, setting of the study, population, sample size, sampling technique, criteria for selection of sample, development and description of the tool, scoring key, content validity, reliability, pilot study, data collection procedure and plan for data analysis.

RESEARCH APPROACH

Quantitative research approach was used in the study.

RESEARCH DESIGN

The research design used in this study was quasi experimental pre and post-test control group design.

Groups	Pre-test	Intervention	Post-test
Experimental Group	O_1	X	O_2
Control Group	O_1	-	O_2

Figure2:Schematic representation of quasi experimental design

Key

O_1 Pre-testlevel of uterine involution in experimental group.

O_2 Post-testlevel of uterine involution in experimental group.

X Fundal massage.

O_1 Pre-testlevel of uterine involution in control group.

O_2 Post-test level of uterine involution in control group.

VARIABLES

Independent Variable

Effect of fundal massage

Dependent Variable

Improvementof uterine involution.

SETTING OF STUDY

The study was conducted in postnatal ward of BensamHospital at KanyakumariDistrict.

It is a 400 bedded Hospital. Hospital includes antenatal ward, postnatal ward,labour ward and gynecological ward. The hospital has separate obstetric operation theater and newborn resuscitation unit. Around 150 deliveries are taking place per month.Out of 150 deliveries approximately 95mothers undergone normal deliveries and 55 mothers undergone caesarean section.

POPULATION

The study population consists of postnatal mothers admitted in postnatal ward.

SAMPLE

Sampleconsists of both primi and multi postnatal mothers who were in postnatal ward atBensamHospital,Kanyakumari,who fulfills the inclusive criteria.

SAMPLE SIZE

Sample size was 60 postnatal mothers. Out of which 30 of them were assigned to the experimental group and 30 of them to the control group.

SAMPLING TECHNIQUE

Bensam Hospital was selected for the study. During the period of data collection nearly 125 mothers were admitted in postnatal ward.Non probability purposive sampling technique was adopted for this study. According to the investigator postnatal mothers who fulfilled inclusive criteria were included in this study. Then they were equally

divided into two groups as30 samples in experimental group and 30 samples in control group.

CRITERIA FOR SAMPLE SELECTION

Inclusive Criteria

- Both primi and multi mothers after delivery within three days.
- Mother who were willing to participate in this study
- Mother with term normal baby.
- Mother who werebreast feeding their babies for eight to ten times per day.

Exclusive Criteria

- Both primi and multi mothers with high riskpuerperium.
- Mothers who had undergone caesarean section.
- Mother who lost their child.

DEVELOPMENT AND DESCRIPTION OF THE TOOL

The tool was developed after extensive review of literature,internet search, and expert advice helped the investigator to select the suitable scale to assess uterine involutionamongpostnatal mothers.The tool has two sections, Section-AandSection B.

The tool constructed in this study was divided as follows

Section-A

It consists of demographic variables such as age, education, occupation, type of family,area of living, gravida.

Section-B

Modified fundal assessment scale to assess the pre and post-test level of uterine involutionamong postnatal mothers.

Place the mother in a supine position.Place one hand on the abdomen just above the symphysis pubis.Place other hand around the top of the fundus.Rotate the upper hand to massage the uterus gently press the fundus between the hands using slight downward pressure against the lower hand and massage it.Massaging the fundus of uterus for ten minutes with the interval of one hour, two times for three days among experimental group of postnatal mothers.

The rate of uterine involution assessed by noting the height of the fundus of the uterus in relation to the symphysis pubis. Bladder should be emptied and thewomenis positioned flat on her back (supine). The researcher places one handon the abdomen and presses to find out the hard mass, after finding out the fundus of uterus researcheruse measuring tape and measurement taken from the top of the uterus to above the symphysis pubis and scored**.**

SCORING KEY

Score 1-20 measured by using Fundal assessment scale.

This is grouped under three categories.

Score	Nature of uterine involution	Description ofUterine involution
1-7	Good	Less than 7cm comes under good uterine involution.
8-14	Average	8-14cm comes under average uterine involution.
15-20	Poor	15-20cm comes under poor uterine involution.

DESCRIPTION OF INTERVETION

Explain the procedure to the mother and provide privacy empty the bladder before doing the procedure.Place the mother in a supine position.Place one hand on the abdomen just above the symphysispubis. Place other hand around the top of the fundus.Rotate the upper hand to massage the uterus gently press the fundus between the hands using slight downward pressure against the lower hand and massage it.Massaging the fundus of uterus for ten minutes with the interval of one hour, two times for three days among experimental group of postnatal mothers.

CONTENT VALIDITY

The content validity of the tool was established on the basis of opinion of two experts in the Field of obstetrics and gynaecologist and three nursing experts in the field of obstetrics and gynaecologicalnursing. Slight modifications were done as per the suggestion of the experts in the tool.

RELIABILITY OF THE TOOL

Reliability of the tool was tested by the investigator and other maternity nursing expert. Personal who was trained in the use of tools. The reliability of the tool was determined by Inter-rater observer technique. The reliability score was r=0.8. Hence the tool was consideredhighlyreliable for proceedings the study.

PILOT STUDY

It is a rehearsal for the main study. The researcher got permission from Principal and research ethical committee of Sri. K. Ramachandran Naidu College of Nursing and HOD of Obstetrics and Gynaecological Nursing. A formal permission was obtained from the Director of JayaherHospital at Nagercoil. The pilot study was conducted for the period of one week (28.03.2011 to 02.04.2011) from 9 am to 6 pm. The concerned ward incharge and duty doctors were also informed and obtained their co-operation.Written consent was obtained.The sample size was six and they were selected by using purposive sampling technique, in that three of them were allotted to experimental and three of them to control group.

Rapport was established with the mothers and a brief introduction about the study was given. Consent was obtained from each mother and reassurance was provided that the collected data would be kept confidential. The data related to demographic variables were collected from the Interview method. Applied fundal massage for experimental mothers once in every ten minutes with the interval of one hour for two times three days.No intervention was given for control group. The pre and post-test level of uterine involution assessed by Modified fundal assessment scale.The result of pilot study

showed that the experimental group had a good involution as compared to the control group. The study was found to be feasible and hence the same procedure was decided to be followed in the main study. There was no modification made in the tool after pilot study. The samples selected for the pilot study were not included for the main study.

PROCEDURE FOR DATA COLLECTION

The researcher got permission from Principal and research ethical committee and HOD of obstetrics and gynecologynursing, Sri K. Ramachandran Naidu College of Nursing. Before the data collection a formal permission was obtained from the Director ofBensam Hospital for conducting main study.

Data collection period was conducted for four consecutive weeks from 4.04.2011 to 30.04.2011. The investigator collected the data for six days a week from Monday to Saturday,and from 7am to 5pm.Each day as the mother get admitted in postnatal ward,investigator selected two to three samples per day.

During the data collection procedure the investigator established rapport with postnatal mothers. They were assured that no physical or emotional harm would be done in the course of study.Based on inclusive criteria the samples were selected and allotted to experimental group and control group. The procedure for data collection was similar to that of the pilot study.Using purposive sampling technique 60 postnatal mothers were selected. Out of 60 samples 30 samples were allotted for experimental group and 30 samples were allotted for control group. The investigator gave fundal massage for 30 samples of experimental group.

Data pertaining to the demographic variables were collected by interview method.The investigator assessed the level of uterine involution by using modified fundal assessment scale and scored. First, the investigator assessed the pre-test level of uterine involution. After this the investigator gave ten minutes fundal massage with the interval of one hour, two times for three days among experimental group. At the end of the intervention the post-test level of uterine involution was assessed by using modified fundal assessment scale and scored. The investigator spent one hour for each sample.No intervention was given for control group. At the end of the third day the post-test level of uterine involution was assessed by modified fundal assessment scale.Data collected was analysedby using both descriptive and inferential statistics.

PLAN FOR DATA ANALYSIS

After the data collection,data were organized, tabulated, summarized and analyzed. The data were analyzed according to objectives of the study by using both descriptive and inferential statistics.

Descriptive statistics

- ☆ Frequency and percentage distribution was used to analysis the demographic variablesamongpostnatalmothers in experimental and control group.
- ☆ Frequency and percentage distribution was used to assess the pre-test and post-test level of uterine involution amongpostnatal mothersin experimental and control group.
- ☆ Mean and standard deviation was used to assess the pre-test and post-test level ofuterineinvolutionamongpostnatal mothers in experimental and control group.

Inferential Statistics

- ☆ Unpaired‘t’ test was used to compare the post-test level of uterine involutionamongpostnatal mothersinexperimental and control group.
- ☆ paired‘t’ test was used to compare the pre and post-test level of uterine involution among postnatal mothersin experimental and control group.
- ☆ Chi-square test was used to associate the post-test level of uterine involution among postnatal mothers in experimental and control group with their selected demographic variables.

PROTECTION OF HUMAN SUBJECTS

The proposed study was conducted after approval of the research committee of theCollege. Permission was sought from the Director of the BensamHospital.Written consent of each individual was obtained before data collection.Assurance was given to thestudy participantsregarding the confidentiality of the data collected.

CHAPTER –IV

DATA ANALYSIS AND INTERPRETATION

This chapter deal with the analysis and interpretation of data related to assess the effectiveness of Fundal massage on uterine involution among postnatal mothers admitted in postnatal ward ofBensam Hospital, Nagercoil.

Descriptive and inferential statistics were used for analyzing the data on the basis ofthe objectives of the study. The data has been tabulated and organized as follows.

ORGANIZATION OF DATA

Section A : Description of demographic variables of the postnatal mothers with uterine involution.

- Frequency and Percentage Distribution of Demographic Variables of Postnatal Mothers.

Section B : **Assessment of the level of uterine involution among postnatal mothers of experimental and control group.**

- Assessment of the pre-test level of uterine involution among postnatal mothers of experimental and control group.
- Assessment of the post-test level of uterine involution among postnatal mothers of experimental and control group.

Section C : Comparison of pre and post-test level of uterine involutionamong postnatal mothers in experimental and control group.

- Comparison of mean and standard deviation of the pre and post-test level of uterine involution among postnatal mothersin experimental group.
- Comparison of mean and standard deviation of the pre-test level of uterine involution amongpostnatal mothers in experimental and control group.
- Comparison of mean and standard deviation of the post-test level of uterine involution among postnatal mothers in experimental and control group.

Section D : Association of post-test level of uterine involution among postnatal mothers in experimental and control group with their selected demographic variables.

- Association of post-test level of uterine involution among postnatal mothers in experimental group with their selected demographic variables.
- Association of post-test level of uterine involution among postnatal mothers in control group with their selected demographic variables.

SECTION-A

DESCRIPTION OFDEMOGRAPHIC VARIABLES OF POSTNATAL MOTHERS

Table-1: Frequency and Percentage Distribution of Demographic Variables ofPostnatal Mothers.

(N=60)

S. No	Demographic Variables	Experimental Group		Control Group		Total (N=60)	
		f	%	f	%	f	%
1.	**Age**						
	18-22 years	11	36.66	12	40	23	38.33
	23-27 years	12	40	13	43.33	25	41.66
	28-32 years	4	13.33	5	16.66	9	15
	>32 years	3	10	0	0	3	5
2.	**Educational Status**						
	Illiterate	2	6.66	0	0	2	3.33
	Primary school	3	10	2	6.66	5	8.33
	Secondary school	10	33.33	12	40	22	36.66
	Graduate	15	50	16	53.33	31	51.66
3.	**Occupation**						
	Housewife	7	23.33	4	13.33	11	18.33

(Table 1cont…)

S. No	Demographic Variables	Experimental Group		Control Group		Total (N=60)	
		f	%	f	%	f	%
	Coolie	2	6.66	2	6.66	4	6.66
	Technical Professional	9 12	30 40	10 14	3.33 46.66	19 26	31.66 43.33
4.	**Family**						
	Nuclear family	20	66.66	18	60	38	63.33
	Joint family	8	26.66	10	33.33	18	30
	Extended family	2	6.66	2	46.66	4	6.66
5.	**Gravida**						
	G1	12	40	15	50	27	45
	G2	16	53.33	10	33.33	26	43.33
	G3	2	6.66	5	16.66	7	11.66
	G4	0	0	0	0	0	0
6.	**Area of Living**						
	Urban	16	53.33	18	60	34	56.66
	Semi urban	2	6.66	6	20	8	13.33
	Rural	12	40	6	20	18	30

Table 1 describes about the frequency and percentage distribution of demographic variables of postnatal mothers with respect to age, education status, occupation,type of family,gravida,area of living.

Out of the 60 postnatal mothers in experimental group with regards to the age 11 (36.66%) of them were between 18-22years,12 (40%) of them were between 23-27years, 4(13.3%)of them were between 28-32 years of age and 3(10%) of them were between >32years.

In the control group 12(40%) of them were between 18-22years of age, 13(43.33) of them were between 23-27years,5 (16.66%) of them were between 28-32years of age and none of them in the age group of >32years.

With regards to the education 2(6.66%) were illiterate, 3(10%) completed their primary school, 10(33.3%) had secondary school, 15(50%) completed their graduate in experimental group.

In the control group none of them were illiterate, 2(6.66%) had primary school qualifications, 12(40%) completed their secondary school,16 (53.33%) of them were graduate.

With regards to the occupation in experimental group 7(23.3) were house wives, 2(6.66%) were coolies and 9(30%) were technicals,12(40%) were professionals.

In control group 4(13.33) were house wives,2(6.66%) were coolies, and 10(30%) were technicals,12(40%) were professionals.

With regards to the gravidain experimental group 12(40%) of them were primigravida mothers, 16(53.33%) of them were second gravida mothers, 2 (6.66%) of them were of third gravidamothers and none of them in fourthgravida.

In control group 15(50%)wereprimigravida mothers,10 (33.33%) of them were second gravidamothers, 5(16.6%) of them were thirdgravida mothers and none of them in fourth gravida.

With regards to the type of family in experimental group 20(66.66) were from nuclear family,8(26.66%) were from joint family, 2(6.66%) were from extended family.In control group 18(60%)were from nuclear family, 10(33.33%) were from joint family,2(6.66%) were in extended family.

With regards to the area of living in experimental group 16(53.33%) were living in urban, 2(6.66%) were in rural,12(40%) were in semi urban. In control group 18(60%) in urban,6(20%)in rural, 6(20%) were living in semi urban.

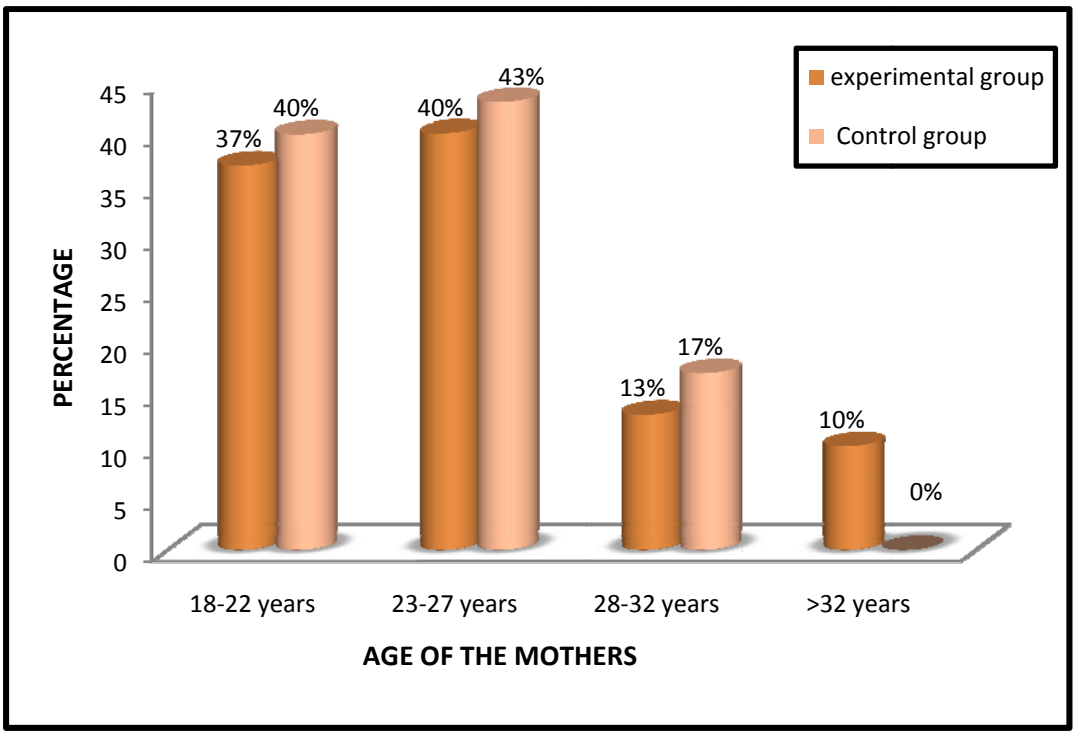

Figure-4: Percentage distribution of age among postnatal mothers in experimental and control group.

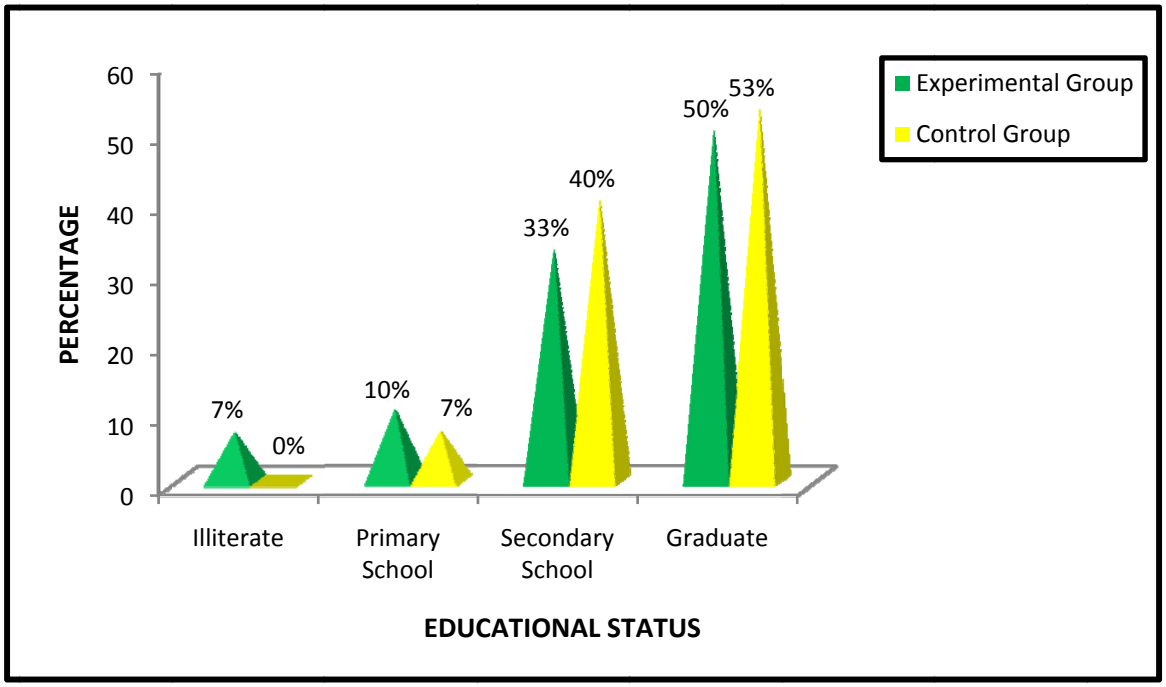

Figure-5: Percentage distribution of educational status among postnatal mothers in experimental and control group.

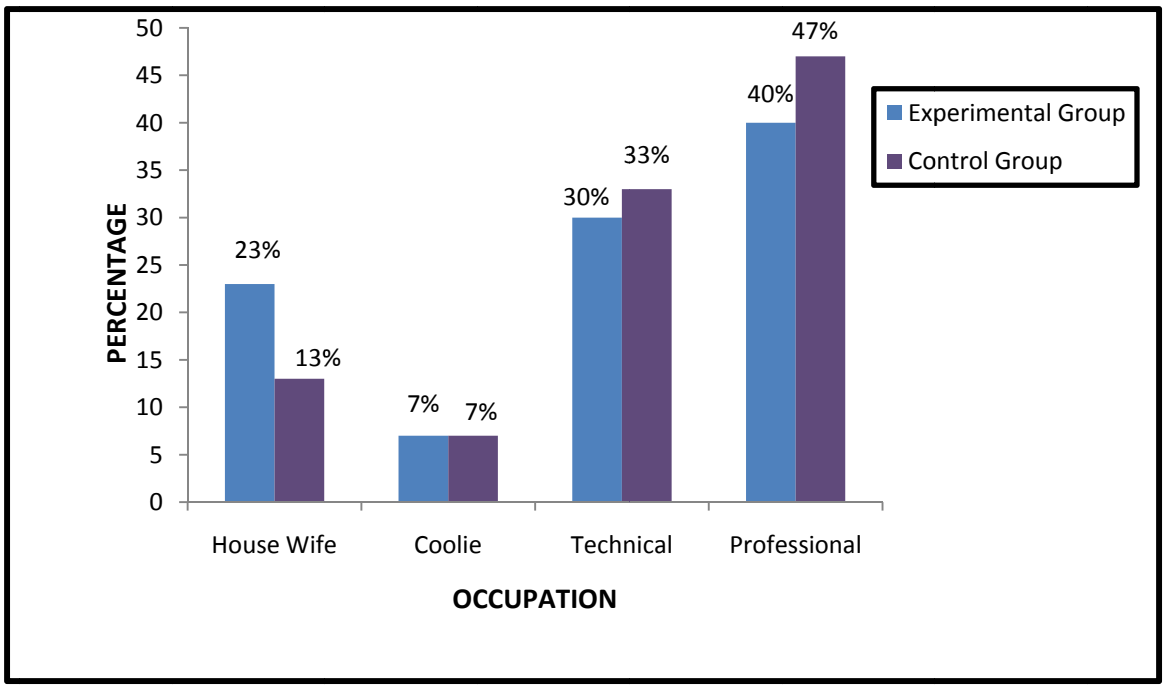

Figure-6: Percentage distribution of occupation among postnatal mothers in experimental and control group.

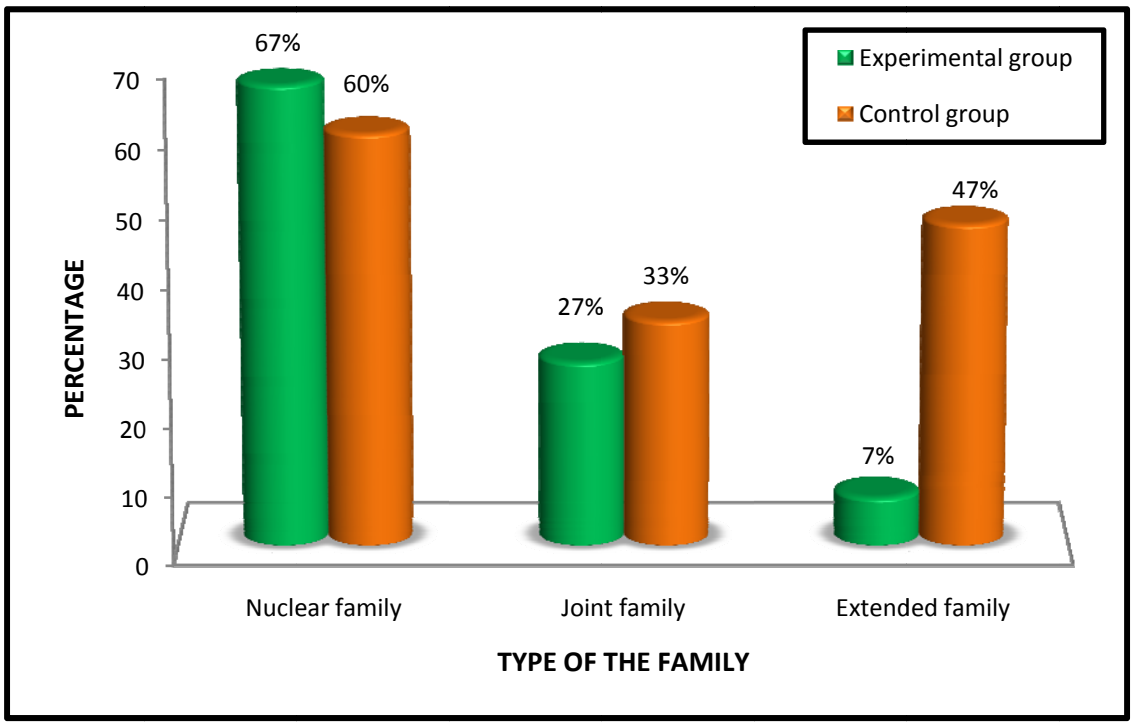

Figure-7: Percentage distribution of type of family among postnatal mothers in experimental and control group.

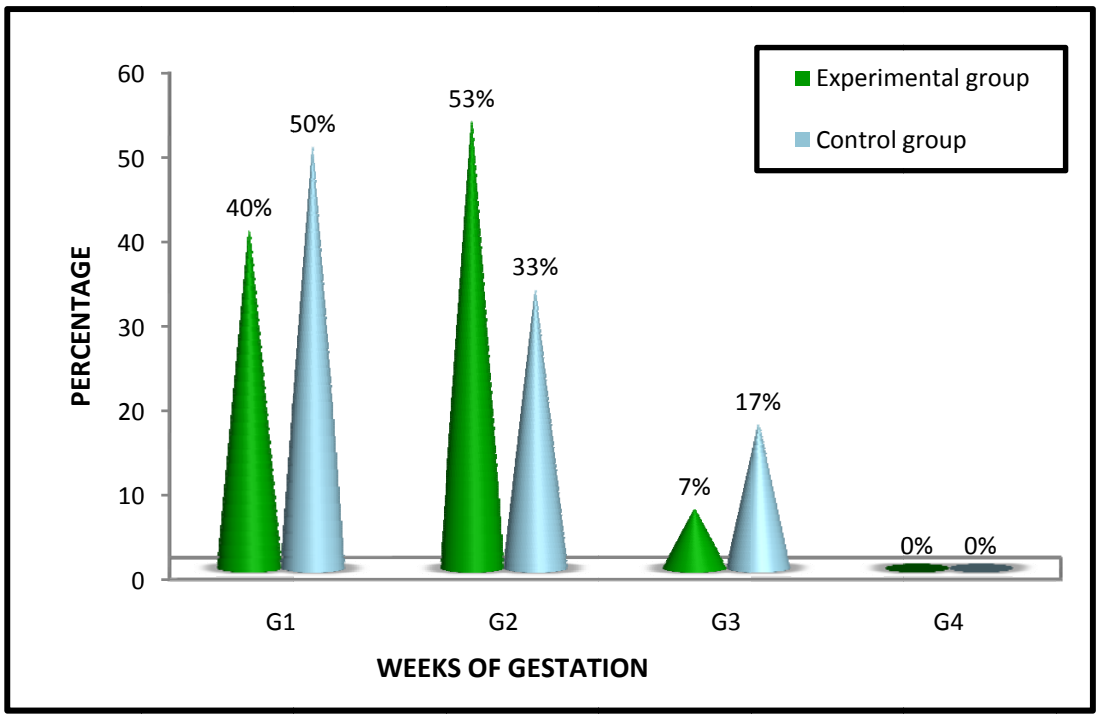

Figure-8: Percentage distribution of weeks of gestation among postnatal mothers in experimental and control group.

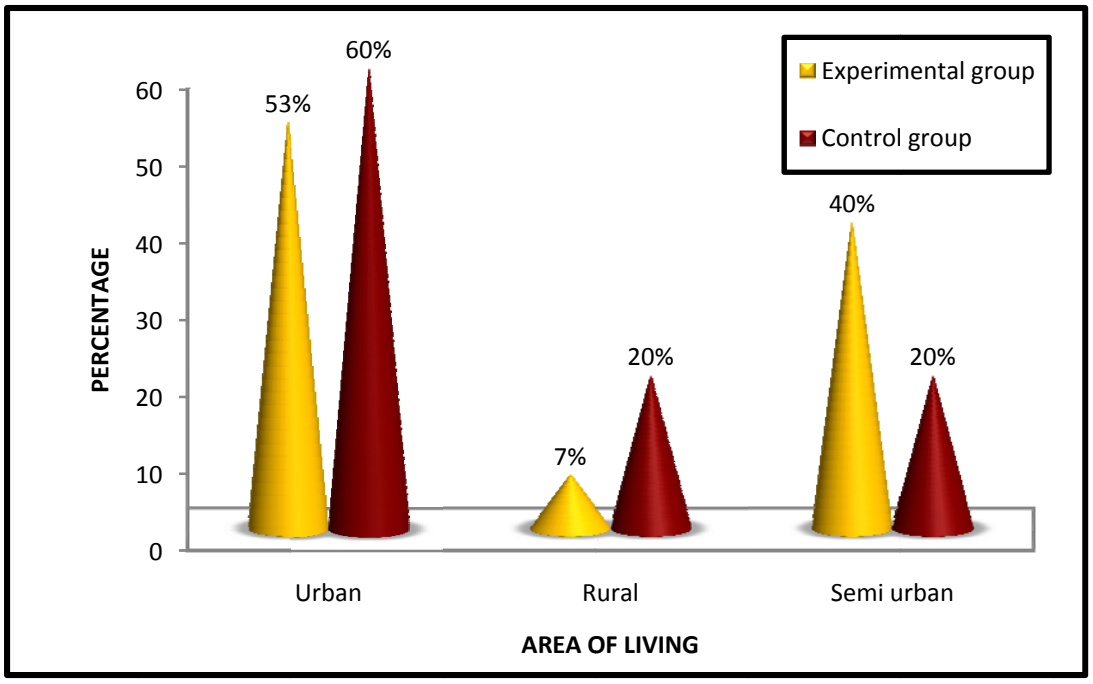

Figure-9: Percentage distribution of area of living among postnatal mothers in experimental and control group.

SECTION-B

ASSESSMENT OF LEVEL OF UTERINE INVOLUTION AMONG POSTNATAL MOTHERS IN EXPERIMENTAL GROUP AND CONTROL GROUP

Table-2: Assessment of the Pre-test Level of Uterine involutionamong Postnatal Mothers in Experimental and Control Group

(N=60)

S. No.	Group	Level of Uterine involution					
		Good		Average		Poor	
		f	%	f	%	f	%
1.	Experimental group	0	0	14	46.66	16	53.33
2.	Control group	0	0	9	30	21	70

The table 2 reveals the frequency and percentage distribution of pre-test level of uterine involutionamong postnatal mothers in experimental group and control group.

With regards to the level of uterine involution in experimental group, out of 30 postnatal mothers,14 (46.6%) of the mothers had average and 16(53.33%) of the mothers had poor involution.

With regards to the level ofuterine involutionin control group, out of 30 postnatal mothers 9 (30%) of the mothers had average and 21(70%) of the mothers had poorinvolution**.** From both the group none of them had good uterine involution.

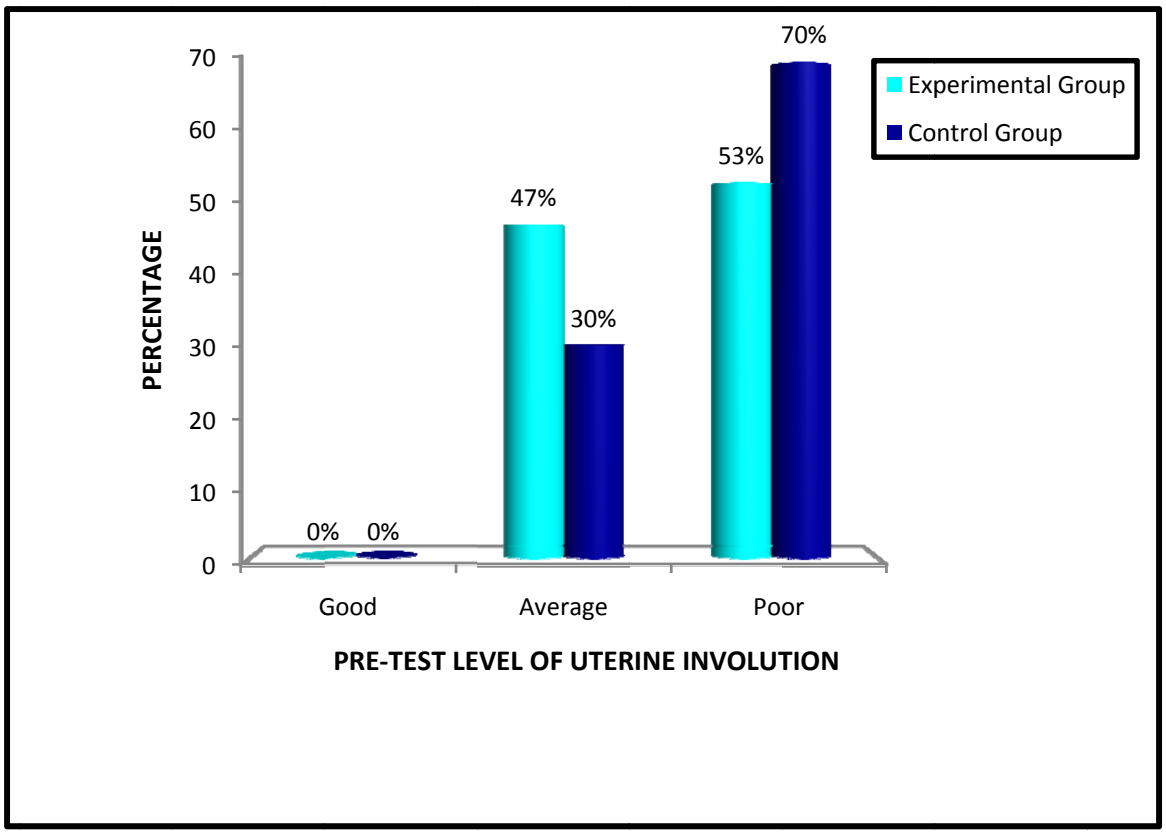

Figure -10: Percentage distribution of pre-test level of uterine involution among postnatal mothers in experimental and control group.

Table-3: Mean and Standard Deviation of Pre-testLevel of Uterine involution among Postnatal Mothers in Experimental and Control Group

(N=60)

S. No.	Group	Mean	Standard Deviation
1.	Experimental group	1.46	0.51
2.	Control group	1.3	.45

Table 3 reveals the mean and standard deviation of pre-test level ofuterine involution among postnatal mothers in experimental and control group.

With regards to experimental group the pre-test mean value was 1.46 with standard deviation of 0.51 in experimental group. In control group the mean value was 1.3 with standard deviation of.45.

Table-4:**Assessment of the post-testlevel of uterine involution among postnatal mothers in experimental and control group.**

(N=60)

S. No.	Group	Level of uterine Involution					
		Good		average		Poor	
		f	%	f	%	f	%
1.	Experimental Group	26	86.66	4	13.33	0	0
2.	Control Group	10	33.33	18	60	2	6.66

Table 4 reveals the frequency and percentage distribution of post-test level of uterine involution of postnatal mothers among experimental group and control group**.**

With regards to the level of uterine involution in experimental group 26(86.66%) of the mothers had good involution, 4(13.33%) of the mothers had average, and none of the mothers had poor uterine involution.

With regards to the level of uterine involutionin control group 10(33.33%) of the mothers had good involution, 18(60%) of the mothers had average involution and remaining 2(6.66%) of the mothers had poor involution.

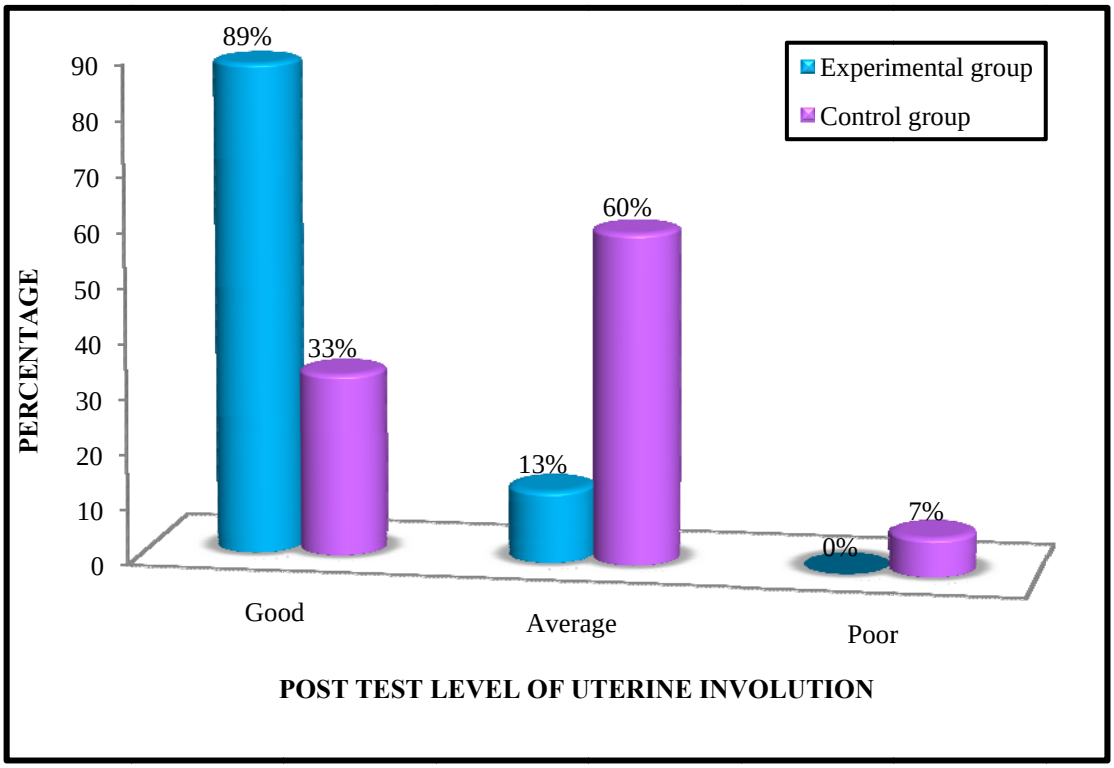

Figure-11: Percentage distribution of post-test level of uterine involution among postnatal mothers in experimental and control group.

Table-5: Mean and Standard Deviation of Post-testLevel of Uterine involution among Postnatal Mothers in Experimental and Control Group.

(N=60)

S. No.	Group	Mean	Standard Deviation
1.	Experimental group	2.86	0.38
2.	Control group	2.23	0.62

Table 5 reveals the mean and standard deviation of the post-test level of uterine involutionamong postnatal mothers in experimental and control group.

With respect to experimental group of post-test mean was2.86 with standard deviation of 0.38. The mean of control group was 2.23 with standard deviation of 0.62.

SECTION-C

COMPARISON OF UTERINE INVOLUTION AMONG POSTNATAL MOTHERS OF EXPERIMENTAL AND CONTROL GROUP

Table-6: Comparison of Mean and Standard Deviation of the Pre and Post-test Level of Uterine involution among Postnatal Mothers in Experimental Group

(N=30)

S. No.	Test	Mean	Standard Deviation	Mean Difference	't' value
1.	Pre -test	1.46	0.51	1.4	11.663 S
2.	Post-test	2.86	0.38		

S-significant

Table 6 shows the paired 't' test to compare pre-test and post-test level of uterine involution among experimental group.

The pre-test mean value was 1.46 with standard deviation of 0.51 and the post-test mean value was 2.86 with standard deviation of 0.38. The mean difference was 1.4. The calculated 't' value was 11.66 which showed that there was a significant difference between the pre and post-test level of uterine involution among the experimental group at $p<0.05$ level of significance. Hypothesis was accepted.

Table-7:Comparison of Mean and Standard Deviation of the pre and post-test level of uterine involution among postnatal mothers in control group.

(N=30)

S. No.	Group	Mean	Standard Deviation	Mean Difference	Level of Significance 't' value
1.	Pre-test	1.3	0.45	0.93	8 S
2.	Post-test	2.23	0.62		

S-Significant

Table 7 shows the paired 't' test to compare the pre and post- test level of uterine involution among control group.

The pre-test mean value was 1.3 with the standard deviation of 0.45 and the post-test mean was 2.23 with the standard deviation of 0.62.The mean difference was .93 and The calculated 't' value was 8 which showed that there was a significant difference between pre and post-test level of uterine involution among control group at $p<0.05$ level of significance.Hypothesis was accepted.

Table-8: Comparison of Mean and Standard Deviation of the Pre-test Level of Uterine involution amongPostnatal Mothers inExperimental and Control Group.

(N=60)

S. No.	Group	Mean	Standard Deviation	Level of Significance 't' value
1.	Experimental group	1.46	0.51	1.47 **NS**
2.	Control group	1.3	0.45	

NS-Non significant

Table 8 reveals the unpaired 't' test to compare the pre-test level of uterine involution among postnatal mothers in experimental and control group.

With regards to the pre-test level of uterine involution amongpostnatal mothers in experimental and control group. It was found 't' value was 1.47 indicating that there is no significant difference between experimental group and control group before intervention. Hypothesis was rejected.

Table-9: Comparison of Mean and Standard Deviation of the Post-testLevel of Uterine involution among Postnatalmothers inExperimental and Control Group.

(N=60)

S. No.	Group	Mean	Standard Deviation	Level of Significance 't' value
1.	Experimental group	2.86	0.38	4.958 **S**
2.	Control group	2.23	0.62	

S-Significant

Table 9 reveals the unpaired 't' test to compare the post-test level of uterine involution among postnatal mothers in experimental and control group.

With regards to the post-testlevel of uterine involution among postnatal mothers in experimental and control group. It was found that 't' value was 4.958 indicating that there was significant difference in post-test level of uterine involution amongpostnatal mothers in experimental and control group at $p<0.05$ level.Hypothesis was accepted.

SECTION-D

ASSOCIATION OF THE POST-TEST LEVEL OF UTERINE INVOLUTION AMONG POSTNATAL MOTHERS IN EXPERIMENTAL AND CONTROL GROUP WITH THEIR SELECTED DEMOGRAPHIC VARIABLES

Table-10: Association of the Post-testLevel of Uterine involution among Postnatal Mothers in Experimental Group with their Selected Demographic Variables

(N=30)

S. No	Demographic Variables	Level of Uterine involution						χ^2 Value
		Good		Average		Poor		
		f	%	f	%	f	%	
1.	**Age**							
	18-22 years	7	23.33	4	13.33	0	0	6.578 df=3 **NS**
	23-27 years	12	40	0	0	0	0	
	28-32 years	4	13.33	0	0	0	0	
	>32 years	3	10	0	0	0	0	
2.	**Education**							
	Illiterate	2	6.66	0	0	0	0	3.363 df=3 **NS**
	Primary school	3	10	0	0	0	0	
	Secondary school	7	23.33	3	10	0	0	
	Graduate	14	46.66	1	3.33	0	0	
3.	**Occupation**							
	Housewife	6	20	1	3.33	0	0	0.461 df=3 **NS**
	Coolie	2	6.66	0	0	0	0	
	Technical	8	26.66	1	3.33	0	0	
	Professional	10	33.33	2	6.66	0	0	

(Table 10 cont…)

S. No	Demographic Variables	Level of Uterine involution						χ^2 Value
		Good		Average		Poor		
		f	%	f	%	f	%	
4.	**Type of family**							
	Nuclear family	17	56.66	3	10	0	0	0.362 df=2 **NS**
	Joint family	7	23.33	1	3.33	0	0	
	Extended family	2	6.66	0	0	0	0	
5.	**Gravida**							
	G1	11	36.66	1	3.33	0	0	2.634 df=3 **NS**
	G2	14	4.66	2	6.66	0	0	
	G3	1	3.33	1	3.33	0	0	
	G4	0	0	0	0	0	0	
6.	**Area of Living**							
	Urban	12	40	4	13.33	0	0	4.033 df=2 **NS**
	Rural	2	6.66	0	0	0	0	
	Semi urban	12	40	0	0	0	0	

NS-Non significant

Table 10 shows there is no significant association between demographic variables and experimental group value. Hypothesis was rejected.

Table-11: Association of Post-testLevel of Involution amongPostnatal Mothers in Control Group with their Selected Demographic Variables

(N=30)

S. No	Demographic Variables	Level of Involution						χ^2 Value
		Good		Average		Poor		
		f	%	f	%	f	%	
1.	**Age**							
	18-22 years	5	16.6	6	20	1	3.33	3.035 df=3 **NS**
	23-27 years	5	16.6	8	26.66	0	0	
	28-32 years	0	0	4	13.33	1	3.33	
	>32 years	0	0	0	0	0	0	
2.	**Education**							
	Illiterate	0	0	0	0	0	0	4.528 df=3 **NS**
	Primary school	2	6.66	0	0	0	0	
	Secondary school	4	13.33	6	20	2	6.66	
	Graduate	4	13.33	12	40	0	0	
3.	**Occupation**							
	Housewife	2	6.66	2	6.66	0	0	1.844df=3 **NS**
	Coolie	1	3.33	1	3.33	0	0	
	Technical	4	13.33	5	16.66	1	3.33	
	Professional	3	10	10	33.33	1	3.33	
4.	**Type of family**							
	Nuclear family	7	23.33	9	30	2	6.66	1.305df=2 **NS**
	Joint family	3	10	7	23.33	0	0	
	Extended family	0	0	2	6.66	0	0	

(Table 11 cont…)

S. No	Demographic Variables	Level of Involution						χ^2 Value
		Good		Average		Poor		
		f	%	f	%	f	%	
5.	**Gravida**							
	G1	7	23.33	6	20	2	6.66	3.75 df=3 **NS**
	G2	1	3.33	9	30	0	0	
	G3	2	6.66	3	10	0	0	
	G4	0	0	0	0	0	0	
6.	**Area of Living**							
	Urban	3	10	17	46.66	1	3.33	9 df=2 **S**
	Rural	5	16.66	1	3.33	0	0	
	Semi urban	2	6.66	3	10	1	3.33	

NS-Non significant, S-significant

Table 11 shows the association of the post-test level of uterine involution among postnatal mothers in control groupwith theirselected demographic variables.

So these findings shows that there was no significant association of post-test level of uterine involution except area of living among control group of postnatal mothers with their selected demographic variables at $p<0.05$ level. Hypothesis was rejected.

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CHAPTER–V

DISCUSSION

This chapter deals with the discussion of the data analyzed based on the objectives andhypothesis of the study. The problem stated is study to assess the effectiveness of fundal massage on uterine involution among postnatal mothers admitted in postnatal ward atBensamHospital,Nagercoil. The discussion is based on the objectivesand the hypothesis specified in the study.

MAJOR FINDINGS OF THE STUDY

1. With regards to distribution of age 40% in experimental group and 43.33% in control groupwere between 23-27 years.
2. With regards to education 50% in experimental group were from degree education,53.3%complete their degree educationin control group .
3. With regards to occupation of the sample 40%in experimental group were professional workers,46.66% of them were professional workersin control group.
4. With regards to the type of family 66.66% in experimental group belongs to nuclear family,60%in control group belongs to nuclear family.
5. With regards to the gravida53.33%in experimental group were second gravida and 53.3% in control group were second gravida.
6. With regards to the area of living 53.33%in experimental group were urban area and 60% in control group were from urban area.

7. In experimental group the pre-test mean value was 1.46 with the standard deviation 0.51 and in control group the pre-test mean value was1.3with the standard deviation0.45.The calculated t value was 1.47 at $p<0.05$ level.
8. In experimental group the post-testmean value was 2.86 with the standard deviation 0.38 and in control group the post-testmean value was2.23with the standard deviation0.62.The calculated t value was 4.958 at $p<0.05$ level.

The first objective was to assess the pre-test level of uterine involution among postnatal mothers in experimental and control group.

The analysis of pre intervention level of uterine involutionrevealed that none of them had good uterine involution in experimental group and control group, 14(46.66%) of mothers had average involution, 16(53.33%) ofmother had poor involution.

With regards to control group the analysis of the pre intervention level of uterine involution no one had good involution,9(30%) of the mothers had average involution,21(70%) of the mothers had poor involution.

The pre-test level of uterine involution mean value in experimental group was 1.46 with standard deviation of 0.51 and pre-test level of mean value in control group was 1.3 with standard deviation of 0.45. The ‘t’ value of the pre-test level in experimental group and control group was 1.47 which showed that there was no significant difference between experimental and control group of postnatal mothers at $p<0.05$ level.

Hence the research hypothesis states that there was no significant difference between experimental and control group. Hypothesis was rejected at $p<0.05$ level.

The second objective was to find out the effectiveness of fundal massage on uterine involution during postnatal period among postnatal mothers in experimental and control group.

The analysis of post intervention level of uterine involution revealed that the majority of postnatal mothers 26(86.6%) had good involution, 4(13.3%) of them had average and no one had poor uterine involution in experimental group.

With regards to control group the analysis of post intervention level of uterine involution revealed that the only 10(33.33%) of them had good involution, 18(60%) of them had average uterine involution and 2(6.66%) of the mothers had poor uterine involution.

The post-test level of uterine involution mean value of experimental group was 2.86 with standard deviation of 0.38. The post-test level of uterine involution mean value of control group was 2.23 with standard deviation of 0.62. The‘t’ value of the post-test level of uterine involutionin experimental and control group was 4.958.

Hence the research hypothesis states that there was significant in thepost-test level of uterine involution among experimental and control group was accepted at $p<0.05$ level.

The third objective was to compare the pre and post-test level of uterine involution during postnatal period among postnatal mothers in experimental group.

The pre assessment level of uterine involution mean value in experimental group was1.46, with standard deviation of 0.51 and the post assessment level of uterine involution mean value in experimental group was 2.86 with standard deviation of 0.38. The calculated 't' value of the pre and post-test level of uterine involution among experimental group was11.663at $p<0.05$ level.

Hence the research hypothesis states that there was a significant difference between pre-test levels of uterine involution among experimental and control group of postnatal mothers was accepted at $p<0.05$ level.

The fourth objective was to compare the pre and post-test level of uterine involution during postnatal period among postnatal mothers in control group.

Pre assessment level of uterine involution mean value in control group was 1.3 with the standard deviation of 0.45.The post assessment level of uterine involution mean value in control group was 2.23 with the standard deviation of 0.62.

The calculated t value of pre and post-test level of uterine involution among control group was 8 at $p<0.05$ level.

Hence the research hypothesis states that there was a significance difference in pre and post-test levels of uterine involution among control group of postnatal mothers was accepted at $p<0.05$ level.

The fifth objective to associate the post-test level of uterine involution during postnatal period among postnatal mothers in experimental and control groupwith their selected demographic variables.

Association of post assessment level of uterine involutionwith their demographic variableswas done by using chi-square test.

Data findings revealed that there was no statistically significant association of post-test assessment level of uterine involution among experimental group and control group of postnatal mothers with their selected demographic variables at $p<0.05$ level of significance. Association of the post-test assessment level of uterine involution with selected demographic variables among control group showed that there was a statistical significance in area of living except age,education,occupation,type of family,gravida.

From the analysis there was no association between post-test level of uterine involution among postnatal mothers in the experimental group and control group. Hypothesis was rejected except area of living in control group.

CHAPTER-VI

SUMMARY, CONCLUSION, IMPLICATION, LIMITATION AND RECOMMENDATION

This chapter deals with the summary, conclusion, implications, limitationsand recommendations.

SUMMARY

The top of the uterus is called the fundus. Massaging the fundus initially after delivery helps aid involution and decreased vaginal flow called lochia. Lochia is the vaginal discharge of the uterine lining where the placenta was attached. The discharge will continue for four to six weeks, until the area is completely healed. Immediately after delivery, it will resemble a heavy period flow, appearing bright red in color and sometimes containing small clots. It fundal massages helps to reduce bleeding as well as improving the uterine involution. So the investigator assessed the effectiveness of fundal massage on uterine involution among postnatal mothers who were admitted in BensamHospital, Nagercoil.

THE OBJECTIVES OF THE STUDY WERE,

1. To assess the pre-test level of uterine involution during postnatal period among postnatal mothers inexperimental group and control group.
2. To find out the effectiveness of fundal massage on uterine involutionduring postnatal period among postnatal mothers in experimental group and control group.

3. To compare the pre and post-test level of uterine involution during postnatal period amongpostnatal mothers in experimental group.
4. To compare the pre and post-test level of uterine involution during postnatalperiod amongpostnatal mothersin control group.
5. To associate the post-test level of uterine involution during postnatal periodamong postnatal mothers in experimental group and control group with their selected demographic variables.

HYPOTHESES

Hypotheses were tested at.05 level

H_1 Mean post-test level of uterine involution of postnatal mothers in experimental group was significantly higher than the mean post-testlevel ofuterine involution in control group.

H_2 There was a significant difference between mean pre-test and post-test level of uterineinvolution among postnatal mothers in experimental group.

H_3 There was a significant difference between mean pre-test and post-test level of uterineinvolution among postnatal mothers in control group.

H_4 There was a significant association between post-testlevel of uterine involutionamong postnatal mothers in experimental group with their selected demographic variables.

H_5 There was a significant association between post-testlevel of uterine involution among postnatal mothers in control group with their selected demographic variables.

The assumptions of this study were,

- Fundal massage may increase the uterine involution.
- Fundal massage may reduce the postpartum haemorrhage.

Review of literature collected for the studies related to,

The literature gathered from exclusive criteria is depicted under the following heading.

Section-A: Studiesrelated to uterine involution

Section-B: Studiesrelated to uterine massage.

Section-C: Studiesrelated to fundal massage on uterine involution.

The conceptual frame work for the study was based on king goal attainment theory and it provided a complete framework in order to achieve the objectives of the study.

The research design selected for the study was quasi pre and post-testcontrol group design. The study was conducted in the postnatal ward at BensamHospital,Nagercoil. The tool used for data collection consisting of demographic variables such as age, education status, work pattern, type of the family,area of living and gravida. Modified fundal assessment scale was used to assess the level of uterine involution. The pilot study was conducted inJayaherHospital, Nagercoil and findings revealed that the tool was feasible, reliable and practicable to conduct the main study.

The tool was validated by five experts and the reliability of the tool was established by inter- rater reliability method.

The main study was conducted in BensamHospital,Nagercoil. The 60 postnatal mothers who fulfilled the inclusive criteria were selected for the study. Out of which 30 mothers were assigned to experimental group and 30 were assigned to control group through purposive sampling technique.

Based on the inclusive criteria the samples were selected and allotted to the experimental and control group. The pre-test level of involution was assessed using Modified fundal assessment scale. Mothers of the experimental group were given fundal massage and that of the control group was not given fundal massage. The post-test level of involution was assessed by using the same scale. Data pertaining to the demographic variables were collected by the investigator by interview method. Both inferential and descriptive statistics were used to analyse the data.

The findings of the study revealed that the calculated ‘t’ value was 4.958 which showed high statistical significant difference in post-test level of uterine involution between experimental group and control group at $p<0.05$ level. Hence the hypothesis stated that there was a significant difference between the post-test level of uterine involution between the experimental and control group of postnatal mothers at $p<0.05$. So the hypothesis was accepted.

Association of the post-test assessment level of uterine involution with their selected demographic variables among experimental group showed that there was no statistical significance.

Hence the hypothesis stated that there was significant association of the post-test level of uterine involutionamong experimental group of postnatal mothers with their selected demographic variables at $p<0.05$. So the hypothesis was rejected.

Association of the post-test assessment level of uterine involution with their selected demographic variables among control group showed that there was a statistical significance in area of living except age,education, occupation,type offamily,gravida.

Hence the hypothesis stated that there was significant association of the post-test level of uterine involutionamong control group of postnatal mothers with their selected demographic variables at $p<0.05$.So the hypothesis was rejected.

CONCLUSION

The present study assessed the effectiveness of fundal massage on uterine involution among postnatal mothers. The results of the study concluded that applying fundal massage was effective in uterine involution of postnatal mothers. Fundal massage is easy to apply, not painful and can enhance comfort to the mother in the postnatal period, hence could easily be adopted as a regular intervention. Therefore, the investigator felt that more importance should be given to the assessment of post uterine involution by using modified fundal assessment scale following the intervention of fundal massage can be given as a non-pharmacological measures to enhance good uterine involution.

IMPLICATIONS

The investigator has derived the following implications, which are of vital concern in the field of nursing practice, nursing education, nursing administration and nursing research.

Implications for Nursing Practice

The midwives have a vital role in providing safe and effective nursing care to enhance uterine involution. This can be facilitated by motivating the nurse midwives to,

1. Have an in-depth knowledge on physiological changes during normal puerperium and management of uterine involution.
2. Learn about accurate assessment of fundal height with the use of modified fundal assessment scale.
3. Develop skill in providing efficient nursing care for effective uterine involution management and promote comfort.
4. Teach the postnatal exercise about the effectiveness of various non pharmacological measures for uterine involution.
5. Teach the effectiveness of fundal massage on prevention of puerperium complication like postpartumhaemorrhageandsubinvolution of uterus.

Implications for Nursing Education

1. Ensure that the students learn the normal physiological changes during puerperium and its management.
2. Provide adequate clinical exposure for the students to give effective and safe nursing care in good uterine involution.

3. Make use of available literatures and studies related to non-pharmacological measures for uterine involution,educate the students about various complementary therapies for good uterine involution.
4. Encourage the students for effective utilization of research based practices.

Implication for Nursing Administration

1. Collaborative with governing bodies to formulate standard policies and protocols to emphasize nursing care in the postnatal mothers.
2. Conduct in-service programme and continuing education programme for effective uterine involution management.
3. Ensure and conduct workshops,conferences,seminars on non-pharmacological methods to improve good involution.

Implication for Nursing Research

1. As a nurse researcher, promote more research on good uterine involution.
2. Disseminate the findings of the research through conferences, seminars and publishing in nursing journals.
3. Promote effective utilization of research findings on uterine involution.

LIMITATIONS

1. Only limited literatures and studies were obtained from the Indian context.
2. Generalization will be better if large sample included.

RECOMMENDATIONS

The study recommends the following future research.

1. The similar study can be conducted with larger samples for better generalization.
2. A study can be conducted to assess the knowledge and practice of fundal massage on uterine involution among nurse midwives.
3. A study can be conducted to assess the knowledge and attitude of complementary therapies for uterine involution among nurse midwives.
4. A study can be conducted to assess the effectiveness of other nursing measures such as abdominal binder,post natal exercise among postnatal mothers.
5. A study can be conducted to assess the effectiveness of fundal massage in reduction on Postpartumhaemorrhage in postnatal mothers.

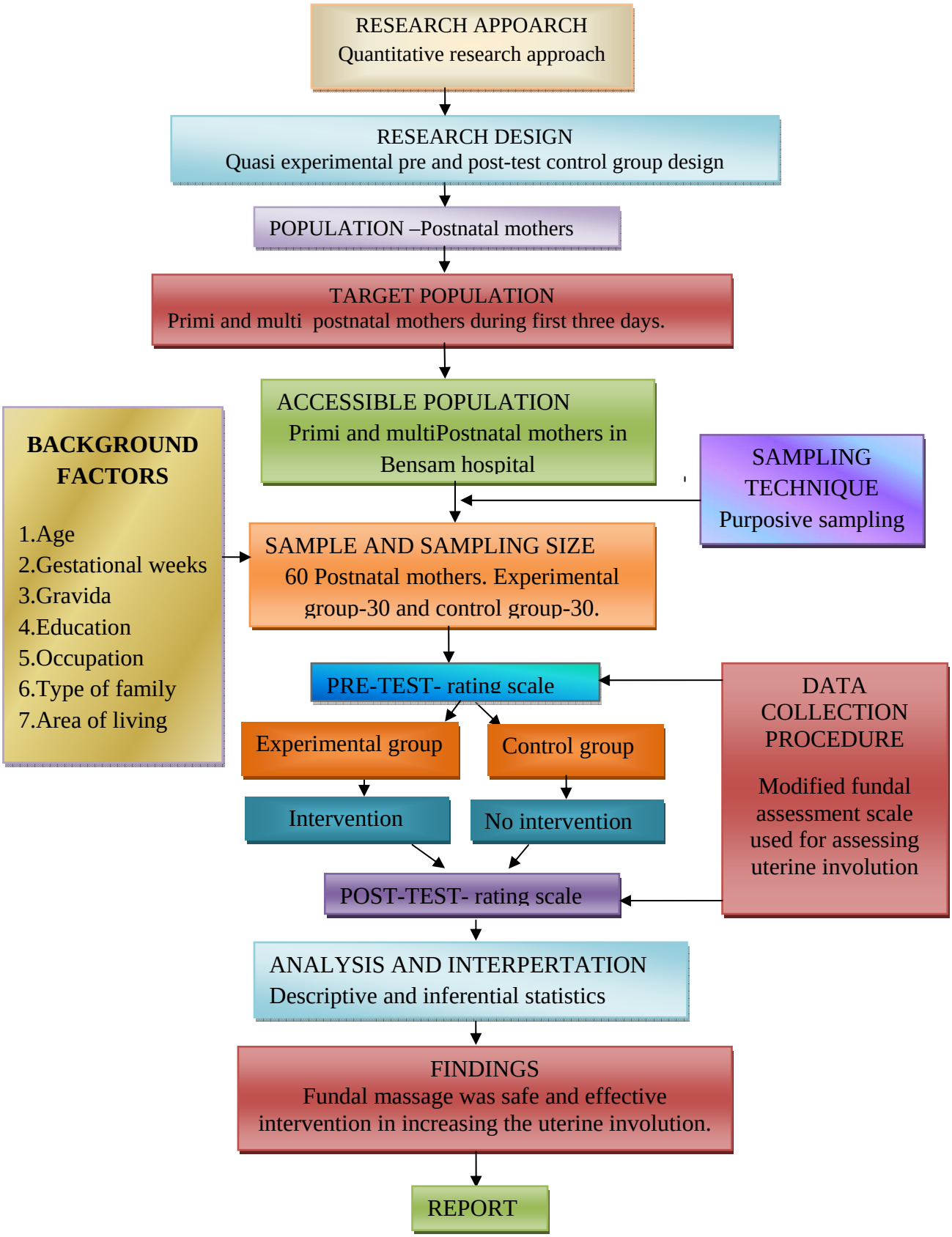

FIGURE 3 SCHEMATIC REPRESENTATION OF RESEARCH DESIGN

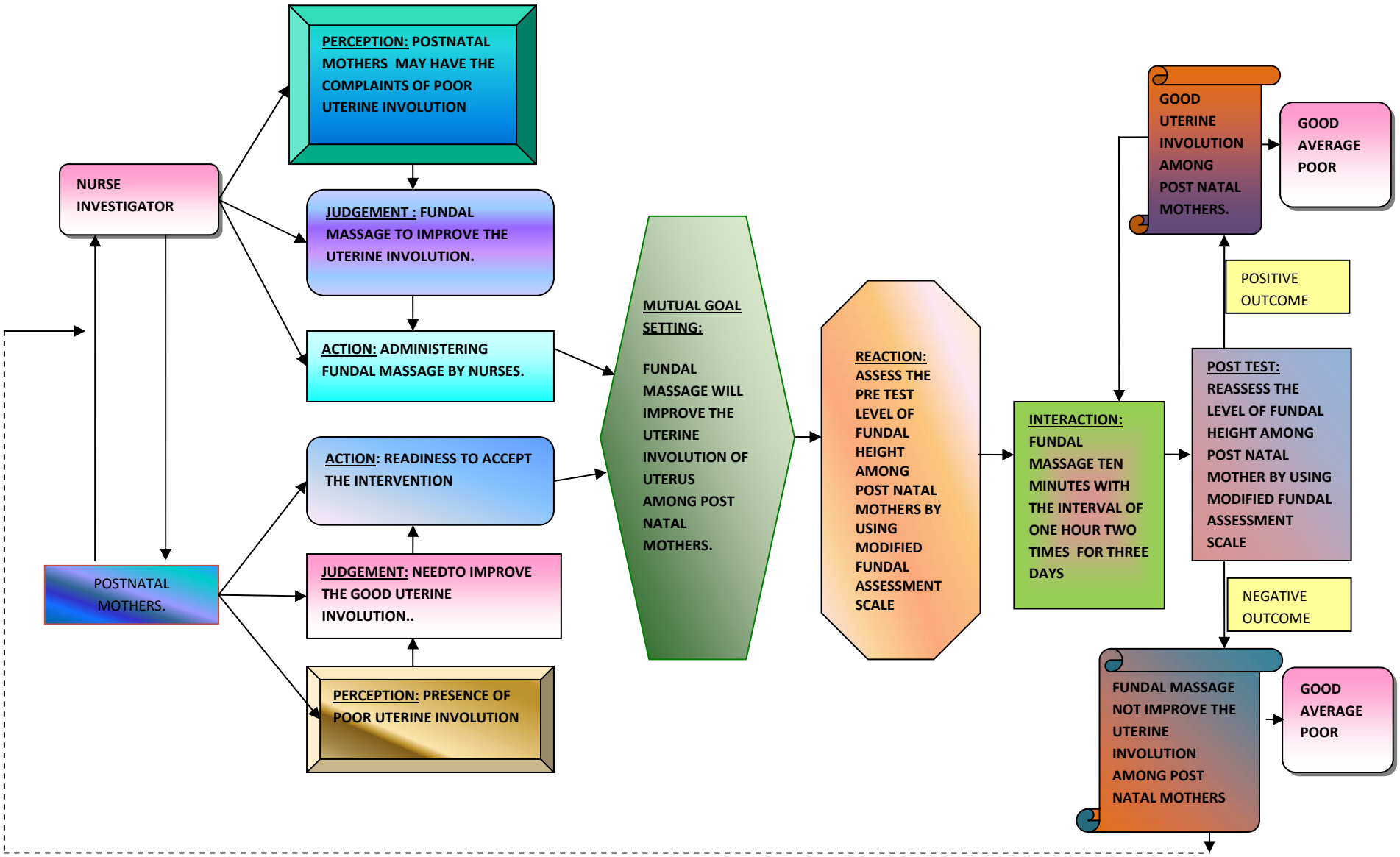

FIGURE.2: CONCEPTUAL FRAMEWORK OF MODIFIED KING'S GOAL ATTAINMENT MODEL

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